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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/810,950	03/25/2004	Chien-Chao Huang	24061.165 (TSMC2003.1068)	9808
42717	7590	11/18/2005	EXAMINER	
HAYNES AND BOONE, LLP 901 MAIN STREET, SUITE 3100 DALLAS, TX 75202			NGUYEN, THINH T	
			ART UNIT	PAPER NUMBER
			2818	

DATE MAILED: 11/18/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

**Office Action Summary**

Application No.

10/810,950

Applicant(s)

HUANG ET AL.

Examiner

Thinh T. Nguyen

Art Unit

2818

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

- 1) ☒ Responsive to communication(s) filed on 15 September 2005.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

- 4) ☒ Claim(s) 1-7 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-7 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

**Application Papers**

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 25 March 2004 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

**Priority under 35 U.S.C. § 119**

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some \* c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
  - ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  - ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

**Attachment(s)**

- |  |   |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892)                        | 4) <input type="checkbox"/> Interview Summary (PTO-413)                     |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)               | Paper No(s)/Mail Date. _____  |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| Paper No(s)/Mail Date <u>3/25/2004</u> .   | 6) <input type="checkbox"/> Other: _____                                    |

### **DETAILED OFFICE ACTION**

1. Applicant's election of claims 1-7 for prosecution without traverse in the communication with the Office on September 15th 2005 is acknowledged.

### **Specification**

2. The specification has been checked to the extent necessary to determine the presence of all possible minor errors. However, the applicant cooperation is requested in correcting any errors of which the applicant may become aware in the specification.

### **Claim Rejections - 35 USC § 102**

3. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102(a/b/e) that form the basis for the rejections under this section made in this office action.

A person shall be entitled to a patent unless --

(a) the invention was known or used by others in this country, or patented or described in a printed publication in this or a foreign country, before the invention thereof by the applicant for a patent.

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

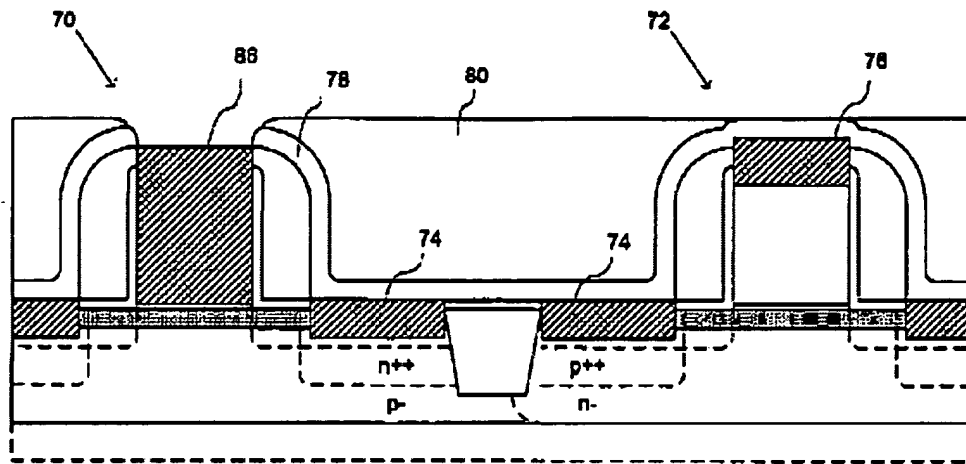
(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language

REGARDING CLAIM 1:

A cross-sectional view of a semiconductor device. A central gate structure (190) is positioned over a channel region (105). The gate structure (190) is connected to a terminal (152) and a voltage source  $V_O$ . The channel region (105) is flanked by side gates (110) and (115). The side gates (110) and (115) are connected to a common source/drain region (100) and a voltage source  $V_{SS}$ . The side gates (110) and (115) are also connected to a common source/drain region (100) and a voltage source  $V_{CC}$ . The device is built on a substrate (100). The gate structure (190) is surrounded by a dielectric layer (191) and a conductive layer (192). The side gates (110) and (115) are surrounded by a dielectric layer (195) and a conductive layer (200).

**Fig. 14**

similarly , Djomehri ( the abstract, fig 5f,column 4 lines 36-44 ) discloses the same invention.



**Figure 5f**

5. Claim 3-7 are rejected under 35 U.S.C. 102(b) as being anticipated by Liang et al. (U.S. Patent 6,130,123).

**REGARDING CLAIM 3**

Liang discloses ( in column 6 lines 51) that the gate electrode material can be polysilicon.

**REGARDING CLAIM 4,5**

Liang discloses ( in column 6 lines 47-67,line 71-4) discloses that the gate electrode material includes a plurality of materials that include metal, metal alloy, metal silicide and their combination.

**REGARDING CLAIM 6,7**

Liang discloses ( in column 3 lines 57-67) discloses that the gate dielectric can be silicon dioxide ( Si O<sub>2</sub> ) or high constant dielectric ( high K ).

6. Claim 2 is rejected under 35 U.S.C. 102(e) as being anticipated by Djomehri et al. (US patent 6,929,992).

REGARDING CLAIM 2

Djomehri discloses ( in column 4 lines 17-19) that the substrate can be a Silicon on Insulator (SOI).

7. When responding to the office action, Applicants are advised to provide the examiner with the line numbers and the page numbers in the application and/or references cited to assist the examiner to locate the appropriate paragraphs.

8. A shortened statutory period for response to this action is set to expire 3 (three) months and 0 (zero) day from the day of this letter. Failure to respond within the period for response will cause the application to be abandoned (see M.P.E.P. 710.02(b)).

**CONCLUSION**

9. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Thinh T Nguyen whose telephone number is 571-272-1790. The examiner can normally be reached on Monday-Friday 9:30am-6: 30pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, David Nelms can be reached at 571-272-1787.

Art Unit: 2818

The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval [ PAIR ] system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

**Thinh T. Nguyen**

Art Unit 2818

A handwritten signature in dark ink, appearing to read 'Thinh T. Nguyen', is written over a horizontal line. The signature is fluid and cursive, with a long horizontal stroke extending to the right.